REMARKS

Claims 1-3 are pending in this application. Claim 1 has been amended. Claim 4 has been canceled and its limitations have been incorporated in amended independent claim 1.

Claim 1 now recites "containing 0.01-0.1 vol% SO_2". Support for this amendment is found in the application as filed, on page 2, line 11 (citing the range 100-1000 ppm SO_2, which is the same as 0.01-0.1 vol% SO_2).

Claims 1-3 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Diep (U.S. Patent No. 4,678,481) in view of Schoubye (U.S. Patent No. 5,108,731), as evidenced by Hakka (U.S. Patent No. 5,017,350) and Thirion (U.S. Patent No. 3,953,578). This rejection is respectfully traversed.

The subject matter of claims 1-3 would not have been obvious over the cited prior art references, considered alone or in combination. A person skilled in the art would not have been motivated to consider Diep to arrive at the claimed invention and, in addition, Diep fails to disclose or suggest all limitations of the claimed invention.

The citation of Diep as the closest prior art in the November 17, 2009 Office Action amounts to pure hindsight. For properly assessing non-obviousness, the correct starting point for developing the invention has to be established. Such a starting point is the prior art dealing with the same technical problem as in the present invention, and must start from the closest embodiment of such prior art, such as the embodiment requiring least amount of structural modifications to arrive at the invention.

Applicants submit that a person skilled in the art would not have been motivated to consider Diep to arrive at the claimed invention. Diep (as the cited closest prior art) is neither related to the same technical problem as that of the claimed invention, nor has a single embodiment which would serve as the starting point for developing the invention. In the Office Action, reference is made to the embodiments of Fig. 1 and Fig. 2 of Diep, although later Fig. 2 of Diep is

cited as the closest prior art embodiment. In any event, the teaching of Diep simply involves the treatment of flue gases with high SO_2 content, containing fly ash and emitted when boilers burn low sulfur coal. The flue gas containing fly ash particles is conditioned to reduce the particle resistivity which, in turn, increases the efficiency of electrostatic precipitators and thus captures the fly ash particles in the flue gas. Accordingly, when reading Diep, a skilled person in the art would understand without a doubt that any solutions given in Diep are applicable only to gases containing fly ash particles from coal burners, which are rich in SO_2 (about 2000 ppm or more) and which result in gases still containing a high amount of SO_2 (about 200 ppm or more). This is not the case of the claimed invention. Simply, a person of ordinary skill in the art would not have been motivated to consider Diep to arrive at the claimed invention.

Even in the remote and unlikely situation when one skilled in the art would consider Diep to arrive at the claimed invention, the fact that so much SO_2 is left in the resulting treated gas of Diep (about 200 ppm or more, see examples of Diep) would, in fact, deter the skilled person from further gleaning anything from the teachings of Diep

The fact that Diep teaches flue gases with high SO_2 content, and containing fly ash, is not sufficient to show that Diep is "reasonably pertinent to the particular problem with which the inventor was concerned." *In re Oetiker*, 977 F.2d 1443, 1446 (Fed. Cir. 1992) (emph. added). The requirement that a reference be reasonably pertinent is not empty rhetoric to be debated without context. The courts have held that "[a] reference is reasonably pertinent if, even though it may be in a different field from that of the inventor's endeavor, it is one which, because of the matter with which it deals, logically would have commended itself to an inventor's attention in considering his problem." *In re Clay*, 966 F.2d 656, 659 (Fed. Cir. 1992). In the case at hand, it is illogical to believe that an inventor concerned with finding solutions to the problem of eliminating rests (residuals) of SO_2 in off-gases at below 150° C (and also not containing fly ash particles) would be commended to the method of modifying the resistivity of fly ash particles of Diep, in a much hotter gas and containing a much higher level of SO_2 even at the end of the process.

Diep also fails to disclose or suggest all limitations of claims 1-3. The gas temperatures of Diep are much higher than the "50-120° C" temperature of claim 1. Again, one skilled in the art looking to find solutions to the problem of eliminating rests of SO_2 in an off-gas at below 150° C (and not containing fly ash particles) would not consider the teachings of Diep (which addresses solutions to the problem of modifying the resistivity of fly ash particles in a much hotter gas). Although, in hindsight Diep may be considered the closest prior art, in reality, a person of ordinary skill in the art would not even consider spending time in reading this reference, as it concerns a completely different teaching devoted to an entirely different application.

Even assuming *arguendo* that Diep would be the closest art, the starting point for a person skilled in the art would be the embodiment of Fig. 3 of Diep referring to the pilot electrostatic precipitator, and not Fig. 2 of Diep referring to an intermediate step between the bench scale and the process simulation experiments (Diep, col. 2, lines 35-37). Thus, it would be immediately realized and obvious that, contrary to the claimed invention which relates to the treatment of gases containing low amounts of SO_2, such as 200 ppm or lower, the teaching of Diep in general (and specifically Fig. 3) involves not only adding fly ash particles immediately downstream of a burner, but also adding SO_2 to the gas (col. 3, lines 3-5) to raise its level to 2500 ppm, i.e. clearly suggesting that the addition of H_2O_2 in the gas only works when treating gases with high SO_2 content. Accordingly, and for at least the reasons above, a person of ordinary skill in the art would not have been motivated to consider Diep to arrive at the claimed invention and, in any event, Diep fails to disclose or suggest all limitations of claims 1-3.

Applicants also submit that one skilled in the art would not have been motivated to combine Diep with Schoubye, Thirion or Hakka, as these combinations are again pure hindsight. The Supreme Court has held that "[t]o determine whether there was an apparent reason to combine the known elements in the way a patent claims, it will often be necessary to look to interrelated teachings of multiple patents; to the effects of demands known to the design community or present in the marketplace; and to the background knowledge possessed by a person having ordinary skill in the art" and that "[t]o facilitate review, this analysis should be made explicit." *KSR Int'l Co. v. Teleflex Inc.*, 2007 U.S. LEXIS 4745, 9-10 (U.S. 2007). Furthermore, it remains the policy of the

United States Patent and Trademark Office that "in formulating a rejection under 35 U.S.C. §103(a) based upon a combination of prior art elements, it remains necessary to identify the reason why a person of ordinary skill in the art would have combined the prior art elements in the manner claimed." *USPTO KSR Memo*, from Margaret A. Focarino, Deputy Commissioner for Patent Operations to Technology Center Directors, May 3, 2007. The November 17, 2009 Office Action has failed to provide such a reason.

The Examiner states that "it would have been obvious . . . to install the filter of Schoubye before the gaseous stream discharged as shown in Figure 2 . . . of Diep in order to attain [the advantage of using a filter to reduce the amount of acid mist] " (November 17, 2009 Office Action at 4). Applicants disagree. These two references are not "combinable" at all, as they relate to completely different teachings. First, the off-gases (as defined in claim 1 of the present invention) are not to be exchanged with the flue gases of Diep which are directly emitted from a furnace or burner (as shown in the figures of Diep, for example). Second, the crux of Diep is changing the resistivity of fly ash particles in a gas from a furnace or burner containing a high amount of SO_2 (about 2000 ppm or more), whereas the crux of Schoubye is the reduction of acid mist by passing the gas leaving each tube from a final sulfuric acid condenser and containing a low amount of SO_2 (if any) through an aerosol filter. The combination of Diep and Hakka also results only in the addition of an amine sorbent or the like (as taught by Hakka) instead of H_2O_2 in a gas with a high content of SO_2 (as taught by Diep).

Applicants also submit that the "requisite prior art suggestion to combine becomes less plausible when the necessary elements can only be found in a large number of references. . . ." *Eli Lilly & Co. v. Teva Pharms. USA, Inc.*, 2004 U.S. Dist. LEXIS 14724 at *104; 2 *Chisum on Patents* § 5.04[1][e][vi]. In the present application, the lack of identifiable objective motivation to combine the four references -- in addition to being disparate references -- is sufficient to overcome the asserted obviousness arguments. Accordingly, this is another reason why the rejection of claims 1-3 should be withdrawn.

Allowance of all pending claims is solicited.

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Respectfully submitted,

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